approach

APRIL 1979 THE NAVAL AVIATION SAFETY REVIEW

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THE junior officer, especially as a mission or plane commander, has a uniquely difficult position in Naval aviation. He is often torn between opting for his professional success (i.e., fitness reports) by "hacking it" or choosing to uphold safety regulations and his own common sense. It is this problem of often seemingly divergent goals that makes the junior officer's role something to ponder.

Despite a lot of verbiage to the contrary, "hacking it" is still a highly regarded and often rewarded trait in a junior officer. In many cases it does separate the men from the boys; the officers that the CO knows he can count on from those that give up or quit at the slightest provocation. In some cases it also separates the living from the dead. But, is it really hard to understand why a competitive, professional junior officer is tempted to "bend" a rule or two in order to have a shot at the next higher percentage block on his fitness report? I think most of us know why it happens.

The suggestion to "bend" a safety regulation may come from a hasty CO or an overzealous department head. In some instances, "side stepping" a rule may seem warranted. The professional junior officer understands this need for mission accomplishment, but also knows that the rules are there for a good reason. He knows that he can't be forced to break a regulation, but what a winner he'll be if he can do it and succeed.

More often, the pressure comes not from a supervisor or a peer, but from the junior officer himself. The desire to be a winner runs deep; sometimes deeper than the desire to live. One ultimately important fact remains, however – getting killed will ruin your career forever. This is the ultimate consequence for breaking safety regulations, whether you want to admit it or not.

The next time you are tempted to make a tradeoff between safety and "professional development," stop and consider the full ramifications of both alternatives. The truly professional decision should be clear. Besides, if you have a reputation for **never** breaking or bending the rules of safety, your CO, Ops boss, etc. will have a hard time faulting you, for you are their best asset.

Vol. 24 No. 10

approach

NAVAIR 00-75-510

This month's cover, painted by Blake Rader, is of the new P-3C Update II aircraft. This is the newest version of the Lockheed Orion aircraft in the Navy's inventory.

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C. B. Weisiger, Helicopter Writer
Blake Rader, Illustrator
Jack LaBar, Illustrator
Catherine M. Salas, Editorial Assistant
Valerie E. Williams, Type Composer
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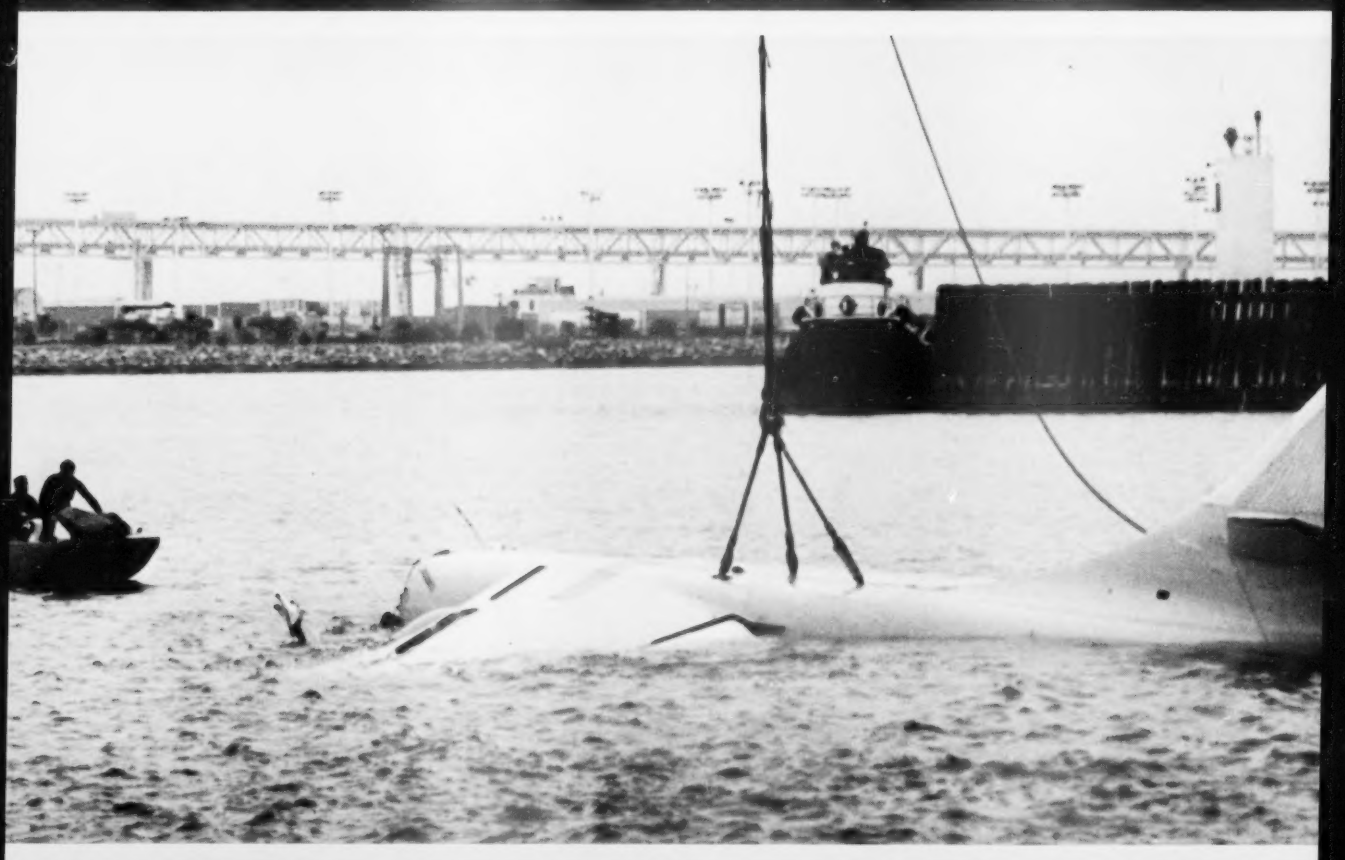
Qualified + Current = Proficient?

UNFORTUNATELY, the above equation does not always ring true. Too frequently the answer is – Negative. There are ways to solve the problem safely, if commands exercise their responsibilities properly and in a timely manner. Too often, aircrews are launched meeting the *qualified* and *current* factors, but not the *proficient*. True, the latter is a term that is difficult enough to define, let alone know how to determine accurately. In most cases it's left up to the pilot to determine his own degree of proficiency. In others, it's left up to his supervisors. Then again, for whatever reason (known or unknown), there appear to be certain cases where no one really knows, or seems to care, if a pilot is up to par for a given flight. Too frequently, we hear terms or phrases like: "He can hack it!", "The hop's a piece of cake!", "He needs the time!", or "No sweat!" Unfortunately for the *Skywarrior* and *Skyhawk* pilots, whose tales are told below, these oft used words were fatefully untrue.



THE SKYWARRIOR THAT DIDN'T WANT TO FLY

"The command is directed to review the management and monitoring of flightcrew qualification and currency requirements in all air wing units and wing staffs, and to ensure that no aircrew personnel are scheduled for flights for which they are not fully qualified."

It's too bad that the above directive had to be written and published *after* the *Skywarrior* went into the drink; after the ill-fated mission became a statistic. Had this directive been in effect prior to the mishap, one KA-3B and its crew of weekend warriors would possibly be intact today. Unfortunately, all perished; victims of the system that is supposed to prevent accidents. The system is NATOPS, but someone must be "minding the store" to make it work. This accident could have been prevented by several individuals within the system, but it wasn't. However, the cause still lies with the crew of the "*Skywarrior* that didn't want to fly."

Squadron operations had scheduled the two KA-3Bs in support of an aerial refueling commitment with some reserve fighter squadrons. The flight of *Skywarriors* would proceed at 10-minute intervals to the refueling area, refuel the fighters, and the lead would RTB (return to base). The wing tanker would execute the second portion of his flight to NAS Big State. Sounded like a routine training mission. The flight leader was well qualified and the wingman had over 1800 hours, of which 1500 hours were in-type. But someone must have been aware that the wingman's NATOPS qualification had expired nearly 5 months prior, and that he had only flown 5+ hours in the last 8 months. Surely the pilot knew of his deficiencies. Then again, he was an IP and PIC in the KA-3, so it should have been a "piece of cake."

The mission was formally briefed well in advance of the scheduled takeoff time. One thing was omitted at this time – the NOTAMs were overlooked, for reasons unknown. No big thing, they could be checked at Base Ops where they were listed on 5 x 8 cards, including the notice that the E-28 arresting gear at Homeplate was out of service. However, this was again overlooked. Just one more error in the sequence of events that led up to why the *Skywarrior* didn't want to fly.

The two flightcrews proceeded their own ways, signed the yellow sheets, preflighted their aircraft, and readied for individual departures 10 minutes apart. Upon reviewing the past 10 gripe sheets, the pilot of Dash Two noticed that the most recent discrepancy was a "downing" gripe involving a 30- to 50-knot error in the airspeed indicator. It was on the low side. When the IAS read 200 KIAS, the aircraft was actually going 230-250 KIAS! No subsequent PMFC was flown to check out this discrepancy. It did "ground check OK" on the test equipment. The decision to launch was made and the crew left the line shack for the awaiting KA-3. Everything looked good, and preflight, start, and taxi went without a hitch.

IFR clearance was issued, read back, and takeoff roll commenced. The weather conditions were very good for the first portion of the mission. Overcast skies at 1500 feet, 7 miles visibility, light and variable winds on the surface. The KA-3B, at nearly 75,000 pounds gross weight, would require a 2000/3000 line speed check of 97/116 KIAS. Takeoff airspeed and distance was programmed at 135 KIAS and 4230 feet respectively. Abort, if required, would have to commence at the 3000-foot marker in order to stop within the remaining 5000 feet of runway. That's if everything was done according to the books; no room for error, no cushion.

Somewhere past the 3500-foot marker, abort was initiated, according to several eyewitnesses. No one can say exactly why the pilot aborted, but the previous gripe on the aircraft's airspeed indicator was a possibility. Although the A-3 probably was performing at its designed airspeed at the line check, it more than likely read 30-50 knots slower than it was actually going. Given the low indicated airspeed, abort was probably the thing to do. About half the runway was left for the pilot to stop the heavily-laden tanker. Unfortunately, more than half would be needed to safely wrestle the bird to a stop.

The pilot deployed the drag chute and lowered the hook shortly after the engines were retarded. Neither were to be of assistance. The chute streamed and the pilot was unaware (previously, anyway) that the arresting gear was removed several days prior for corrosion control inspection/repair. This was not all that would allow the waterbound *Skywarrior* to end up in the drink. The pilot had selected the antiskid brake system prior to takeoff (according to NATOPS). This would override any attempt at max-braking. This was substantiated by the lack of heavy black tire marks on the runway, and no indication of overheated brakes or flat spots on the tires. The odds were stacked against this crew, this day. The aircraft continued off the

runway and came to rest in the bay nearly 100 yards beyond the overrun.

Although this accident cannot be equated to "running out of airspeed, altitude, and ideas at the same time," it can be considered similar in nature. The pilot definitely was at the end of the rope. Both he and the crewman were trapped in the wreckage and died as a result of drowning. A multitude of errors and omissions led up to this unfortunate accident. Had any one of many persons in the chain carried out his assigned responsibilities, it might have been averted.

The pilot, more than likely, aborted due to the possible airspeed indicator error. Any delay in abort procedures would be critical. Had the chute not streamed or had the antiskid system been deselected, maybe the pilot could have stopped the aircraft on the dry surface utilizing max-braking. Then again, if the A/G had been rigged? . . . If the crew had worn their O_2 masks? If . . .

All these "ifs" would be academic if the command structure had functioned properly. Command responsibility shouldn't have permitted this pilot to fly in the first place, at least not as the pilot in command. They knew his flight currency qualification had expired nearly 5 months ago. They knew he had only flown a little over 5 hours in the past 8 months and that these three hops were without an IP (instructor pilot). They knew that the A/G was out, and that the aircraft had a major gripe on it. (Or did they?) Are the communications in your command based upon a two-way street, or one-way, as in this case? As the prologue says, "The command is directed . . ."

THE SKYHAWK THAT FLEW - FOR AWHILE

"The pilot had not previously been approached as a candidate for the mission, but now, considering the factors of his experience, his need for flight time, and the requirements of the mission, the feasibility of his assignment was examined. After deliberations and extensive briefings, the decision was made – let the Skyhawk fly with the qualified, current, yet not-so-proficient pilot."

The mission was relatively uncomplicated. The pilot was required to fly straight-and-level passes between 500 and 1000 feet AGL, at 250 to 300 KIAS. A routine hop in support of a ground missile unit stationed in the desert. It sounded simple enough, but finding a qualified, current, and proficient pilot on an off-duty weekend posed a minor problem. If a volunteer couldn't be found, one of the contingent of permanent pilots would have to forsake his weekend liberty for work. The selection looked bleak until a volunteer showed up, indicating that he would like to take the weekend mission.

Although he was not considered as an original candidate for the tracking mission, the volunteer pilot that came forth seemed to be the acceptable and logical choice. He did need the time to satisfy his annual minimums, and he was running a little behind in his progress in the unit. This weekend flying of four hops would bring him back up to speed and satisfy the requirements laid upon the unit by higher authority. But, one "glitch" was discovered. The volunteer was no longer current according to the SOP. He was qualified, but hadn't flown in over 30 days (closer to 60). He had come in during the week for some additional time and was scheduled for an ordnance hop. Due to his lack of currency, that hop was changed to a less demanding flight – a refamiliarization hop, chased by a qualified, current, and proficient member of the command. But this was not to be, as aircraft availability precluded this warmup.

The homefield was to be closed for most of the weekend, so the missile tracking mission had to be flown from a nearby base. A Friday launch with a RO2N was the answer, if the pilot could get "current" on Friday. Somehow the mission would go.

It was decided that the volunteer could become current by launching on a roundrobin flight on Friday afternoon, landing at a not-too-distant AFB. He would complete the tracking mission for the missile unit on Saturday-Sunday, and return to his homebase on Sunday afternoon. The base agreement completed, the detailed mission brief followed. And detailed it was. No fewer than three other pilots got into the act to "ensure" the safety of the mission.

At first there was some amount of skepticism about the pilot's ability to handle the situation. He hadn't flown in over 30 days and he had only 35 hours in-type (spread out over 7 months); this 35 hours was all that he had accumulated in over 2 years (inactive duty). His tactical readiness in the A-4 was noted as "a bit inexperienced" and "less than optimum" due to his previous fighter background and recent unavailability to fly. The briefings centered around the hazards of the mission. The main points covered were words of caution – "Don't press it," "Don't fly in a manner other than briefed," and "Don't fly passes below 500 feet AGL." With these briefings thoroughly explained to the volunteer, everyone appeared satisfied that he was qualified and could "hack" the assignment.

The cross-country warmup hop was flown that Friday afternoon and arrived at Valley AFB before dark, as briefed.

To ensure that this weekend warrior carried out his instructions, a phone call was made to the RON airfield just to doublecheck that all was "A-OK." The pilot secured the *Skyhawk* for the night and headed to the "Q" for some hot chow and a good night's rest, prior to tackling the next day's mission. The missile trackers were less than 15 minutes from Valley AFB, so a 1+30 on target and a 15-minute return would not tax the A-4's fuel reserve. After lunch, another missile trackex was on the schedule, followed by another RON, one more trackex on Sunday morning, and then Homebase.

Arrival on target was slightly ahead of schedule and somehow the "words of the briefs" were forgotten by the volunteer. Five hundred to 1000 feet, 250-300 KIAS went out the window! The missile battery was in the process of setting up its equipment when the "sierra hotel" pilot commenced "doing his thing." One pass by the troops, who were on a knoll about 25 feet above the desert floor, was eyeball-to-eyeball with the pilot. Dust, gravel, and jetwash blew the covers (caps) off the startled missileers! The gunners thought they were really getting a show, as on most of the passes they were looking *down* on the aircraft. Upon completion of some of the passes, the pilot would make steep pullups, followed by a few aerobatics. The "level runs" soon turned into simulated dive bombing runs in order to give the spectators a picture of what an aircraft looked like in other attack modes. (The basic request for bombing runs was from the missileers.)

After about 25 minutes of this "airshow," the pilot pulled up into a steep climb, performed a reversal maneuver, and commenced what was to be his final run. The *Skyhawk* appeared to slow toward the bottom of its run, then impact the desert floor tailfirst, and burn. Scratch one A-4 and its qualified, current, but not-too-proficient pilot from the inventory.

Unauthorized and unscheduled airshows continue to plague Naval aviation both by the qualified and unqualified. Like the saying goes, "There is nothing more useless than the altitude above you, the airspeed you don't have, or the runway behind you." The mystery may always remain

APPROACH is a monthly publication published by Commander, Naval Safety Center, Norfolk, VA 23511. Subscription price is $15.00 per year; $3.75 additional for foreign mailing. Subscription requests should be directed to: Superintendent of Documents, Government Printing Office, Washington, DC 20402. Controlled circulation postage paid at Norfolk, VA.

in the minds of those that were aware of this mission – had the volunteer preplanned his own destiny, or was it an impromptu act. The supervisory personnel *determined* that he was *qualified, current,* and *proficient* enough to handle this mission which "required no demanding or critical maneuvers, or expertise beyond the basic pilot skills." The pilot *did* need the flight time, the mission *had* to go, and he *assured* everyone that he would do nothing outside what was briefed, particularly unsafe maneuvers!

Although the PFP (Proficiency Flying Program) is a thing of the past, there are many aviators on DIFOPS orders that are authorized to fly, and remain qualified, current, and proficient. However, due to "banking" of flight time, several weeks or even months may go by the boards between flights! What happens to proficiency then? It was quite obvious in the *Skywarrior* and *Skyhawk* cases.

Pilots are trained to fly, and they should fly as much as possible. But due to insufficient men, money, and materials (add desire if you wish), plus those ever-present collateral duties, this is often not the case. The equation is a safe one, but only if well monitored and administered by each command. On top of this, it must have the backing and sanction of those in higher echelon commands. So, for those who fly and/or supervise, please go back and reread the tales of the two unproficient pilots and see if anyone in your command comes up with the equation's answer of – No. If you reevaluate your pilots' capabilities, limitations, and expectations, then you may be able to prevent the next accident. It's your responsibility! ◄

PRO OF THE WEEK

AMHAN Robert A. Harker, USN, is nominated for a Pro of the Week award.

During carrier qualification aboard USS EISENHOWER, AMHAN Harker, of Reconnaissance Attack Squadron THREE, was making a routine inspection of an RA-5C *Vigilante* during hot refueling. He found a small crack in the starboard main landing gear scissors which, if not detected, would have probably caused the main landing gear to collapse on the next arrested landing.

The discovery of a cracked main landing gear scissors by AMHAN Harker, during the high tempo of flight deck, carrier qualification operations, is indicative of his outstanding professional initiative. The crack in the landing gear scissors was insidious in nature and most difficult to discover, as it was partially obscured by paint and lubricants.

By his meticulous attention to detail, AMHAN Harker saved an irreplaceable *Vigilante* and, possibly, the lives of the crew. We need a lot more pros like this!

No moon for SAR pilots

By 1st Lt Jerome E. Pendzick
MCAS Beaufort Search and Rescue

NEARING the end of a recent WESTPAC tour, I was disappointed to learn of my subsequent assignment to a station job as a SAR pilot. Worse yet, it was MCAS Fightertown, a place of dubious value to a Fleet H-46 driver. Upon reporting in, I was introduced to the HH-46A, a tried and true version of the current D and F models in Fleet service. On the sometimes rocky road to making HAC, I learned that new flying techniques could be mastered if one persevered long enough.

Lest anyone misinterprets my feelings, they were prompted by not knowing what was in store. Since my arrival I've been happy with my lot. However, there is some sand stuck in my craw which I need to spit out.

For example, in our SAR bird a night, overwater approach to a 50-foot hover and subsequent pickup is exciting to say the least. The procedures can be executed only if enough light allows adequate external reference in the hover by the pilot not flying the helicopter. NATOPS requires the pilot at the controls to assume an instrument scan as the helo passes the flare markers on final approach. The instrument scan must be maintained through the approach, while in a hover and hoist pickup, and subsequent waveoff. The HH-46A not equipped with AFC 307, hover coupler, demands much higher pilot proficiency and skill levels to sucessfully complete IFR hover/hoist operations.

I want to emphasize that pilot ability, cockpit coordination, and hoist operator/rescue crewman coordination are taxed. If ever a pilot earned the reputation as a good stick he must have been a SAR pilot.

Though the H-46 is a multipiloted aircraft, the pilot attempting to hold visual reference cannot be considered as an acceptable margin of safety. Recent mishaps in the H-46 community due to dual pilot vertigo and low instrument proficiency readily prove this point. Instrument flight in a vertigo-inducing environment (i.e., hovering IFR over a flickering light source) can be fatal.

Response to a night SAR mission often finds SAR crews in a physically and mentally fatigued state, due to maintenance of an immediate response posture for 12 hours or more. This is hardly the optimum condition of readiness before commencing rescue/MedEvac missions.

At MCAS Fightertown, we have instituted several guidelines to help maintain our readiness.

- *Crew proficiency.* Crews must fly a minimum of two hooded-day approaches before commencing night SAR approaches during training flights. Standby crews are strongly encouraged to practice all phases of instrument flight.
- *Crew coordination.* Frequent pilot/crew standardization meetings are held to continually reexamine aircrew coordination during a rescue effort.
- *SAREX.* Exercises which closely simulate actual SAR contingencies are planned and executed to test crew proficiency/readiness.

There is a great deal of pride in professionalism when a difficult rescue/MedEvac mission is completed successfully. Running out to man our "frog" for the fifth assist in one day makes me wonder if these stiff-wing types aren't giving us more work than we need to earn our keep. ◄

We Can Hack It! While lowering the T-39's starboard engine to replace the fuel flow transmitter, it was discovered that the lowering cable attached to the engine was connected improperly. Upon discovering this situation, the crew discussed it, and the decision was made by the maintenance crew to "press on" without correcting the problem because the job was almost done and they did not believe the engine would fall. After continuing, the engine had to be lowered an additional one-half to one inch to allow them to complete the task at hand. The JT12A-8N turbojet engine fell to the deck, damaging the fuel control, thrust reverser, engine inlet, hot air manifold, and EGT harness!

Another case of the "shortcutting," "can-do-itis," "we-can-hack-it" syndrome. Improper maintenance procedures were followed throughout. Supervisors definitely didn't do their jobs. They were aware early enough in the evolution that the engine was improperly hooked up to the sling, yet they didn't take the time to stop work and properly correct the unsafe situation.

Lessons must be learned and relearned, time and time again – but why must they be done the hard way? In any environment where a high tempo of operations, a low supply of aircraft, and inexperienced personnel exist, strict adherence to maintenance and safety procedures plus sound judgment and commonsense must be exercised consistently. "Can-do" attitudes have their places except where they affect safety on the job and result in individuals making poor decisions.

Head Down and Locked. During a conventional takeoff, the *Harried Harrier* pilot became temporarily distracted in the cockpit due to difficulties when attempting to raise the landing gear. As the gear retracted, the pilot's attention focused primarily outside the cockpit – but too late! The AV-8 momentarily settled back onto the runway, then became airborne. The pilot aborted the mission and returned for an uneventful landing (this time).

Although damage to portions of the aircraft's undercarriage was minor, it could have been more serious. It definitely serves to highlight the need to avoid complacency and distractions and to remain alert during all phases of flight, particularly during takeoffs and landings . . . "lest the ground come up and smite thee!"

A Slight Problem. A *Whale* was carefully serviced for a long overwater flight. Actually the crew was flying to a destination which involved several legs. The flight was routine until the last leg.

At destination the pilot made a VFR entry into the traffic pattern. Following the break, flaps were lowered on the downwind leg with wings level. As soon as the flaps were lowered a violent yawing and rolling motion was encountered.

The pilot reacted by countering the yaw with full rudder deflection and increased power. Slats were rechecked for extension, and the pilot checked the engine gages for operation. He thought a possible flameout could have occurred since the asymmetrical flight was similar to a single-engine situation. He brought the aircraft back to balanced flight, raised the flaps, and breathed easier when the yaw/roll ceased. He knew he had split flaps.

The pilot entered the delta pattern and a series of conversations ensued between the pilot, the tower, and squadron representatives. A consensus was reached and a shortfield arrestment was planned. The E-28 gear was rigged at the approach end of the duty runway. The crash crew eased into position – just in case.

The pilot shot a no-flap approach and touched down on speed 1000 feet before the arresting gear. A successful

arrestment followed. The drag chute wasn't deployed in case the arresting gear was missed, 'cause the pilot wanted to be able to wave off for a second go.

Postflight investigation revealed a flap actuator bolt and bracket retaining bolt were missing from the starboard flap hinge assembly. The bolt holes were also elongated and severely worn. The same bolts on the port side were loose but not missing. Maintenance records revealed the flaps had not been removed since the squadron received the aircraft. However, the flaps were disconnected a few months before the incident to facilitate removal of the forward fuel cell. Speculation is that the flaps were improperly reconnected. This was proved when sleuths inspected the port actuating bolt. Although it was in place, it had no bolt lock and was held in place by only a few threads on the bolt.

The squadron CO opined that haste, carelessness, and improper CDI procedures permitted this to happen. Unquestionably, more rigid quality control could have prevented the incident.

A Slick Job of Spotting. The weather about the ship was more than anyone could ask – clear, 10 miles visibility, winds out of the north at 20, and the sea state was low with swells of 3 feet. Everything was near perfect as the first launch of the day awaited the signal – "Launch the jets!" The cats were spring loaded to the *GO* position, and then the *vacuum cleaner* commenced to clear the deck!

It was due to the lack of external electrical power that the A-7 was unable to perform its preflight alignment checks. Instead it waited until after start, at which time the aircraft was respotted, allowing other aircraft to proceed to the cats. With the plane captain's signals complete, the *Corsair* was directed to its new spot by a yellow shirt. As it taxied to its new spot, it twice began slipping across slick spots on the deck with its brakes locked! After slippin'-and-a-slidin', the A-7 was chocked and chained abeam No. 3 elevator to complete the alignment checks. With the checks complete, the *Corsair* was taxied toward the No. 4 cat to await its turn. En route, the A-7 commenced to slip and slide on slick spots again!

Despite this slippery experience, the pilot managed to get to his designated spot behind the JBD on cat 4. The A-7 was judged to be secure (by a yellow shirt), spread its wings, and awaited its turn to launch behind the S-3 on cat 4. But launch this day it wouldn't – at least not into the blue. Instead, slippin'-and-a-slidin' commenced again, only this time with the aid of the *Hoover* who was at military power on the cat! Even with the presence of the JBD, the nose of the A-7 began to arc left and aft. "Behind cat 4, I'm sliding! I need chocks!", broadcast the concerned *Corsair* pilot. The air boss, seeing the uncontrolled "taxi maneuvers" of the A-7, transmitted, "Get some chocks under that aircraft!" Finally, people are beginning to talk, but a little too late. The errant *Corsair* continued its wayward journey and, despite the efforts of its distraught pilot, came to rest against an unmanned F-14 a little less than 100 feet aft of the No. 4 JBD.

Although there were no injuries due to this mishap, the *Corsair* received Delta damage and the *Tomcat*, Echo. The *Viking*? Well, he finally got the word and reduced power, after the fact. The damage had been done. The word has to be received by all parties as soon as problems start, not after! Too frequently we read about mishaps similar to this one, particularly when aircraft are being respotted on the flight or hangar decks. Too many crunches are caused by lack of communication and coordination. The only way they will stop is to coordinate and communicate in a timely fashion. When will this become an everyday occurrence? Soon . . . we hope. It's one of the keys to safety. Have you checked your key locker lately? ◄

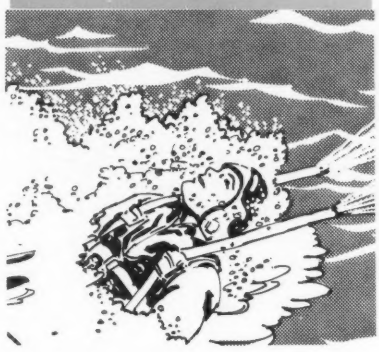
Correction to "SEAPAC"

Corrections to DEC '78 APPROACH article titled SEAPAC.

The article inadvertently implied that the SEAPAC (Sea-Activated Parachute Automatic Crew) release system is fully developed and ready for operational use. It stated that SEAPAC "has been developed and extensive testing has been done" and cited the results of live-jump parachute tests under high wind conditions.

SEAPAC is still in the design and development stage, and a design freeze has not been achieved to date. Only limited feasibility testing has been conducted, but extensive testing is planned during the next year. The live-subject testing under high wind conditions did not use the current SEAPAC system but used an earlier system that proved the benefits of automatic canopy release.

The current schedule plans for completion of the design testing and evaluation program in July 1980 with delivery of A-7 retrofit kits commencing in August/September 1980.



TAIL CONTROL

By Maj N. L. McCall, USMC
Naval Safety Center

MOST pilots consider themselves knowledgeable on the subject of tail control – how nice it is to have and how hard it is to fly without it. Detailed discussions on its effects are commonplace among aviators. This article is for those who really want to know what happens, and why it happens, when they run out of tail control. So pay attention, you helo drivers. What you know or don't know about your helicopter's tail may save or bust yours.

The tail rotor in single main rotor helicopters provides directional control by counteracting the torque generated when engine power is applied to the main rotor. To accomplish this function the tail rotor must be driven at a much higher RPM than the main rotor. This is general knowledge. However, the potential consequences of this difference in RPM are not well known, and usually are not given much thought. They need to be!

During normal operations, main rotor RPM is maintained within normal limits and tail rotor thrust is sufficient to do its job. However, this may not be the case during operations which result in a loss of main rotor RPM such as high altitude or heavy lift flights. In these cases, it is possible to have enough main rotor thrust to fly, but not enough tail rotor thrust to maintain directional control. Too many helicopter pilots are unaware of this possibility. Some who are aware usually do not consciously consider it when they begin to lose turns. Most of the time this lack of awareness or consideration is moot, because corrective action, reducing collective, to restore main rotor RPM will also restore tail control. Sometimes, however, the pilot may be in a situation where a reduction in collective is not advisable. Such a predicament is most likely to be during hover at high altitudes and during high ambient temperatures. It may occur any time power required equals or exceeds power available, or when the engines are topped at 100 percent N_f/N_r at less than transmission limit torque, regardless of the ambient conditions.

There is no one corrective action to respond to a loss of tail rotor authority due to the many variables which must be considered. If tail rotor authority is lost during a hover, I would land immediately, terrain permitting. You will end up landing anyway, and the sooner you get on deck, the less time rotation has to develop. If tail rotor authority is lost during takeoff, I would either land or try to "fly it out" depending upon the severity of the yaw and the terrain. By "fly it out" I mean to get into translational lift which will decrease power required. The reduction in collective which becomes possible after entering translational lift will allow main and tail rotor RPM to be at least partially restored. These corrective actions are only the author's opinions. They are intended to stimulate thought and discussions, and maybe provide a little insight into a potentially dangerous area.

As with many other problems, it is easier to prevent loss of tail rotor authority than it is to correct it.

The best prevention is to:

- Anticipate the problem.
- Watch the gages – early recognition of excessive rotor droop will allow you to avoid trouble.
- Use smooth collective inputs – a small droop is easier to eliminate than a large one. ◄

Just another hop

By LT Tim Thomson
VA-196

THE pilot and B/N of an A-6E were eager to fly one clear, dark night while deployed in the South China Sea. They had missed an earlier flight due to a downed aircraft and their hop was now to be a routine tanker mission. They briefed thoroughly and manned the aircraft.

It is an understatement to say that a tanking mission to the Fleet can become quite routine. The tanking objective is simple but paramount during night carrier air operations. In most cases, the pilot does no more than fly in circles at max-conserve, and the B/N (or observer, as he is officially but rarely called) becomes a simple accountant, logging fuel transferred and dumped. The mission rarely changes from day to day, month to month, or cruise to cruise. Or does it?

The B/N was lucky. No KA-6D aircraft were available so the crew was assigned a full-system bomber configured with a D-704, buddy store. Although the mission remains the same, at least he now had a radar and computer to help him pass the time.

Launch and climbout to low-station were uneventful. The D-704 was reported "sweet," and, upon completion of the recovery, the crew established themselves at high-station where multiple practice plugs were obtained by various air wing aircraft. In preparation for the next launch, the refueler descended to low-station in order to "hawk" the oncoming tanker.

After checking the oncoming tanker sweet, they became available to the fighters for "opportune fuel." The crew was given instructions to split their give between two F-14s. The first fighter reported intermittent fuel transfer and departed from the tanker after receiving only 600 pounds. The second *Tomcat* plugged and also reported intermittent green light. The F-14 crew decided to disconnect and replug, attempting to establish better fuel transfer. As he was backing out, the F-14 pilot noticed a brilliant flash from the drogue followed immediately by an explosion and fire engulfing the buddy store and tail of the tanker. Temporarily blinded by the flash, the F-14 pilot immediately broke away and descended from the tanker. The RIO observed the same events but assumed his aircraft was also on fire. With one hand on the face curtain, the RIO finally established communication with his pilot. Upon regaining his composure, he made a Mayday call on tanker control frequency.

From inside the cockpit of the tanker, the crew heard and felt an explosion. When looking aft, they saw reflections of fire on the wing and droptanks. After returning his scan to the instruments, the pilot noticed the AFT TEMP firewarning light. With secondary indications confirmed, the pilot called for ejection and both aircrew ejected normally at 9000 feet.

Due to the proximity of the ship and the plane guard, the helos reached the scene of the accident before the crew entered the water – presenting an unusual and potentially unsafe situation.

Ejection over water and subsequent water entry was extensively briefed only a few days earlier at a squadron safety standdown. After performing proper procedures the crew was expeditiously recovered, suffering only slight injuries sustained during the ejection.

All in a night's work? Perhaps. The moral is, don't be led down the path routinely. It's a hard temptation to overcome. This crew was prepared for the unexpected. Are you?

VP-26 COME ONE,

Two great ideas with one goal in mind.

By LT T. Bybel

SAFETY is no accident, and it is only effective when all hands in an organization participate 100 percent of the time.

Actively motivating people and involving them in safety awareness can be a difficult, multifaceted task. One very effective tool used by VP-26 has been a planned safety review program, encompassing all the diverse requirements of patrol squadron personnel.

Involving people, rather than lecturing, was the idea behind our program. The goal was to reduce the potential for personal injury by enhancing safety awareness. To achieve this the squadron was divided into two groups – flightcrews and ground support personnel. Each group had its own set of activities for a day-long safety review.

The safety department sought to equalize this year's program between the two groups. All flightcrews were rotated through a series of miniprograms which included blindfold aircraft drills, simulated ditching and bailout, SAR kit refresher training and launching, round-table discussions on crew coordination and flight safety, aircraft and personal equipment inspections, and a water survival training exercise in the NAS Brunswick pool.

The aircrews were broken down into various subgroups according to their aircrew positions. Pilots and NFOs discussed premishap planning with the ASO. Flight engineers and second mechs conducted shop safety training with their division QAR. All other aircrewmen received training in CPR (cardiopulmonary resuscitation) and first aid.

All hands attended a presentation on motor vehicle safety given by representatives of the Maine Department of Transportation.

Simultaneously, diversified safety training for ground support personnel was arranged according to the needs of the various shops, branches, and departments. Each of the shops was allotted a period of time for personnel to conduct in-house safety training with the QAR, to gain insight into the QA program and their responsibilities. Several subjects were administered to all ground support personnel:

- A station-sponsored driver safety program.
- Aviation physiologists conducted a lecture on hearing conservation and administered tests in the audiometer booth.
- Medical personnel conducted first aid training.

Particularly noteworthy was the realistic first aid training provided by HMC Dawson. He picked a "victim" or two from most of the shops and subgroups, simulated certain injuries, and then instructed the rest in the proper treatment. Chief Dawson followed this by instructing everyone in CPR.

Meanwhile admin/personnel support people met with the base Fire Marshall to receive hands-on training in fire prevention and containment in topside spaces. Further, topsiders who often ride as passengers in the P-3 were given an in-depth briefing by the NATOPS flight engineer on aircraft hazards and use of survival equipment.

The goal of enhancing safety awareness was achieved through the involvement of all hands in meaningful training.

Continued

COME ALL! VQ-3

A good standdown is quite a find.

By LCDR D. C. Ahlstrand

THE safety officer's prime concern has to be the elimination of injuries and aircraft mishaps to reduce the staggering dollar outlays, lost material assets, and to protect our invaluable human assets. When considering our people, we have to be concerned with their safety both on and off the job. If we lose one squadron shipmate, for any cause, it doesn't matter if it was due to an aircraft-related mishap, on the highway, or in the home.

While brainstorming a safety standdown we decided we wanted to do something that would touch on most facets of life on Guam. It finally came to us – A Safety Fair!

At first we thought we might have bitten off more than we could chew. However, with planning and outstanding cooperation from other organizations, both inside and outside the Navy, everything fell into place beautifully.

We committed ourselves to making this a total command evolution, including dependents. (Besides, you can't have a fair without kids.) We chose a date that was a school holiday. We decided upon the type of booths and exhibits we wanted, and we were off and running.

The following booths, displays, and exhibits were set up:

- The dispensary display afforded a fine view of first aid equipment, and the corpsmen gave continuous presentations on their uses.
- NAS security manned a booth and gave presentations on motor vehicle safety.
- NAS crash crew had a static display of equipment.
- NAS fire department had a display and presentations on home fire hazards.
- The weather detachment had a display and presentations on typhoons with associated preparations and precautions to be observed.
- The SAR crew provided a static display of the H-1 and explained their lifesaving equipment and techniques.
- The EOD team had a display and presentation on WWII ordnance that is still found on Guam.
- The PR shop set up a display and presentations on personal survival equipment.
- Operations had a presentation on operations security.
- The local police provided a display and presentations on drug education.
- We provided a static display of an EC-130Q.

The bottom line is that the Safety Fair was an unqualified success. It combined fun and safety education, not only for squadron personnel but also for our families as well. We intend to make it an annual event – with improvements. ◄

HARD HEADED

But Not Quite Hard Enough!

A CREW of three manned their CH-46 for an afternoon passenger run. There were five passengers aboard to be transferred from the departure base to the first stop. There were also passengers at the first stop waiting for the helicopter's arrival to take them to a third base.

The crew conducted a thorough preflight and when ready, passengers were given a full briefing before boarding the helo. The briefing was completed and the only unusual thing was the refusal by an 0-4 to don either a helmet or sound suppressors. The lack of cranial protection would eventually cause the passenger's death.

The takeoff was normal, and the transit time was less than half an hour. The HAC called the tower a few minutes out requesting landing information. The HAC was cleared to land at the heliport, and the tower reported winds out of the north at 5 knots. The pilot was also informed that another helicopter had just departed. The incoming pilots sighted the outbound helo and continued the approach.

At about 10 feet over the helicopter pad, with a ground-speed of 5 knots, and just before reducing collective to land, there was a sound of an explosion. It was a loud crack, followed by a couple of more muffled explosions. Immediately the helicopter began violent vibrations and hit the ground uncontrollably. It did not roll over. However, it did hit hard enough to drive the nosewheel up into the cockpit console, between the pilots.

The HAC reported something struck the back of his seat and jammed him forward about a foot. Then he was thrown back. He wasn't knocked out, but he was dazed. He saw the copilot unbuckling, and since his door had popped out, he pivoted in the seat and got out. His vision was blurred and he was unable to focus. He remembered weaving away and being conscious that the helo was aflame.

The copilot in the left seat reported he was thrown forward in his seat, banged his legs hard on the cyclic, and then had the sensation of being forced farther forward. He said the cockpit appeared to be wiped out. He couldn't get out of his door at first and had to try several times before he got out. By the time he exited the helicopter and walked around the nose, the aircraft was completely in flames.

The crew chief was standing at the crew door clearing the landing area when he heard the explosion. He was hit in the back and knocked down. He could see daylight from the forward transmission area, and heard the aircraft splintering. It was the sound caused by two rotor blades coming through the cabin. Flames appeared instantly and a large ball of flame moved from the back of the cabin to the front. The crew chief tried to stand but his leg was caught. He saw one passenger crawling forward and was able to kick open the side door. He saw another passenger

dive out the emergency exit. Meanwhile the copilot and a passenger dragged the crew chief out of the helicopter.

The third passenger said they hit hard, tail first, and then the nose pitched down. He reported everyone was thrown violently in the seats and debris filled the cabin. Flames were immediately seen. He leaned away from the flames, released his seatbelt, and exited through the forward crew door. He remembered seeing the rotor blade stubs still moving the helicopter around, and he said he couldn't breathe.

The fourth passenger was in shock. He knew his seat failed, but he couldn't remember where he ended up inside. He knew his hair was burning, and upon seeing a window nearby, pushed himself backward out of the window. When he hit the concrete he was able to stand and scurry away from the holocaust.

The fifth passenger was killed when the blades came through the cabin or when struck on the head while rattling around inside the cabin. The passenger never got out, and none of the survivors saw or knew what had happened to the missing passenger after the crash.

The tower operator called the ambulance and fire truck to the scene. Initial firefighting had been started by observers of the crash and the helo crew and passengers. They used hand-held bottles and three large bottles, but it appeared ineffective to them.

The forward yellow blade failed due to fatigue (non-ISIS). Fuel and hydraulic lines ruptured in the cabin causing the fire. Strangely, the main fuel cells did not ignite – due possibly to initial firefighting efforts. Those who escaped were protected by nomex suits and cranial helmets. This accident serves as an example of the necessity for all crewmembers and passengers to be properly attired before going on a flight. Further, the passengers acknowledged the importance of the briefing they received before departure.

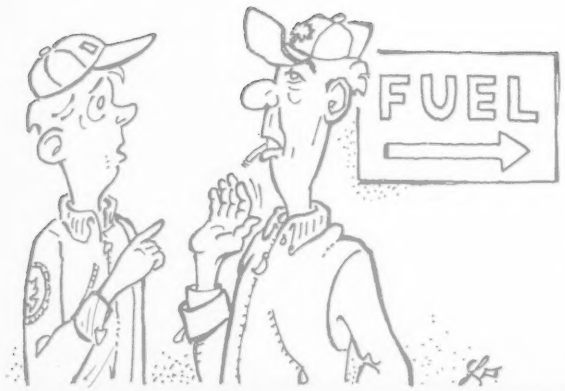
Copilot Error?

By LCDR Bob Merrill
VP-64

YOU have to wonder, reading about all those aviation disasters, how many labelled "pilot error" could as well have been labelled copilot error? And, if that is true, then how many aircraft tragedies could have been avoided had the copilot openly expressed his doubts and given his advice to the man making the final decision? We all know that this openness, this teamwork espoused by NATOPS, is not always the case. Sometimes the copilot just doesn't speak up. Why not?

• Today you're copilot. Your PPC is the overbearing type – loud, gruff, and, of course, infallible. He doesn't particularly care for advice from underlings, even if his copilot is also a qualified PPC, as you are. In turn, you don't especially feel like giving a crass fellow like this the benefit of your wisdom. It's more fun watching this "gift to aviation" occasionally get himself into jams – small ones – not major ones, you understand. Funny how he's always pontificating on the nuances of landing; yet, more often than not, he's the guy who prangs it in (ah, the exquisite amusement one's humiliatingly hard landing can engender in one's copilot!). Is this perhaps why you sometimes don't warn him that his rate of descent is becoming a bit much – not dangerous, mind you, just a bit much? (Variations of the scenario above have also been known to occur when the PPC is a "heavy," such as the skipper or perhaps a department head, and the copilot is a "light," or feels like one.)

• It's a relief not having to sign for the aircraft, isn't it, copilot? You don't need the aggravation – or responsibility – of signing for this particular flight; a rather tricky sequence of stops here and there. Let the eager beaver make the decisions. At the weather brief, thunderstorms are forecast throughout the legs of your journey. On preflight, radar advises that his radar is down. Considering the forecast, you have grave doubts as to whether you should go with this bird; but, then, you're not the PPC, so you don't voice them. He wants to go, and it's his decision.



• It suddenly dawns on all of you, prior to takeoff on your fourth and final leg of the day, that you're a little short on fuel. Like any good copilot you mention it to your PPC. He, however, is in a hurry and knows refueling at this particular field will take longer than your average pit stop. He figures the destination weather is not all that bad and decides to get on with the flight. Your interpretation of destination weather is not quite so optimistic, however, which is why you'd like to put on another eight grand or so. But, rather than create a fuss with your PPC, who seems to have made his decision, you don't press the issue. As it turns out, you finally make it home, after having to hold for an unanticipated 30 minutes, with less than prescribed fuel minimums.

• A planned 15-minute passenger stop at a civilian airfield with no P-3 support turns into an hour-and-a-half delay. Number three engine refuses to light off. It's getting late. The PPC figures the skipper's on his way home this late afternoon and won't be able to be reached for permission for a three-engine ferry takeoff, as NATOPS requires. He figures he'll go ahead and make a three-engine ferry takeoff in the fast dwindling daylight and get the bird back to the squadron, rather than be stuck for the night at an airfield without adequate P-3 support. You, the copilot, also a qualified PPC, are aware of the NATOPS restriction, too. But, like everybody else, you'd like to get home. So, though you have some qualms as to the wisdom of this decision, it's not your aircraft in any case. You decide not to strongly object to this move.

Obviously, there's more to copiloting than just those mundane tasks we usually associate with the second pilot: helping with the filing and the preflighting; reading the checklists; and calling airspeeds, altitudes, and angles of bank. These may get aircrews through the average flight, but then there are those days, those crucial moments, those times when a pilot should not be left a lonely island in his decisions. These are the moments when the copilot must play the devil's advocate, or perhaps become an accessory to an imprudent, possibly tragic, decision. It is not for the copilot to indulge the darker side of his so human nature, the side that sometimes enjoys another man's woes, the side which occasionally does not want to interfere or get involved because . . . it's not his aircraft. Nor should he withhold his advice because he fears or dislikes his air commander. The copilot's constant concern must and should be the safe conduct of the flight. He must operate at all times on that lofty plateau.

With the emergence in recent years of the Mission Commander, now jointly responsible with the PPC for the conduct of the flight in its entirety, and with emphasis in VP aviation increasingly placed on ASW readiness, the copilot seems to have become the forgotten man of the VP crew. He has no logs to complete, no essential role to perform in many quals (other than, of course, his essential role of safety backup). He is rarely required at debriefs. Little wonder that today's copilot may feel unmotivated and uninvolved.

Yet, it is this being slightly removed from the action that is precisely what can, and should, render the copilot so invaluable to the safe conduct of a flight. It is this separation that should enable the copilot to put things in their proper perspective, to see the forest while everyone else is, perhaps, zeroing in on the trees. ◄

BEWARE!

WORDS of caution and warning are frequently seen in the obvious and not so obvious places in the aviation environment that we live in. Such places may be flight decks, ops buildings, transient flight lines, hangars, carrier islands, safety posters, and, yes, even the "duty libraries." In most cases, these words are read and heeded by the safety conscious individuals in today's Navy and Marine Corps. Unfortunately, there always seem to be that 2 percent that fail to get the *word*!

Four recent mishaps claimed the lives of three individuals and nearly a fourth. All four were working on the flight deck or flight line. It's hazardous enough just working in this environment alone, but take an intentional or unintentional break from safety, while under stress to get the job done – well, see what happened to four that overlooked words of caution. Judge for yourself what the moral should be in these cases of haste makes waste.

- An airman proceeded towards the E-2 to chock it after it passed the island. As he moved away from the starboard mainmount he entered the arc of the propeller. Results – obvious.
- A maintenanceman was reconnecting the speed brake actuator rod to the speed brake. His coworker, who thought he had left the area, turned on the hydraulic test stand which caused the speed brakes to close. The man connecting the speed brake of the A-7 was really caught in a bind, fatally.
- A plane captain inadvertently got too close to the intake danger zone during a high-power turnup of an A-7 and was literally sucked into the engine. Results – obvious, again.
- A yellow shirt was braced against the A-7's droptank as an A-6 taxied across deck and forward of the *Corsair*. The *Intruder* increased "needed" power for positioning, but forgot there were personnel on the flight deck in close proximity. The "yellow shirt" attempted to grasp the A-7's sway braces, but in vain. The A-6 was too much to battle, and he was blown down the flight deck. He received multiple injuries but was more fortunate than the previous three men. He recovered and got to re-read all those words of caution/warning.

It can be said again and again, SAFETY has no time off. Those that don't read and heed are usually the ones that get hurt in the end. One inadvertent wrong move or hesitation, one ill-timed assumption or evolution, one "Well, I thought that he . . . " often leads to catastrophic results, as seen in the aforementioned cases. How can such cases be prevented? The solution – education, training, practice, communication, supervision, and, yes, good old commonsense are the basics. School is never out, for SAFETY. Let's go full bore to stop the unnecessary mishaps in '79. ◄

Sure....everything's fine!

THE copilot of a transport picked up the mike to call the passengers' attention to a historic fort below the aircraft. While he was using the PA system, Center came in with a clearance. The plane commander acknowledged their clearance and both pilots became very busy running through checklists. They had been cleared for a TACAN approach to their destination, but were not given the current weather.

After passing the final approach fix inbound they heard a pilot talking to the tower in an exasperated voice: "Do you mean you cannot work VFR and IFR traffic simultaneously?" The transport pilots looked at each other, shook their heads, and continued descent to MDA. They reported field in sight and were cleared to land beyond the 2000-foot marker.

There was a thunderstorm in the area which was responsible for gusty winds out of the south at 20 knots. The duty runway was northeast. The tower reported the winds just before touchdown and, when the transport had to make a jog for final lineup, the tower asked if he was going around. The pilot replied negative.

The plane commander purposely touched down in the right half of the runway, at 2500 feet. On rollout the pilots both saw an attack aircraft clear of the runway about

the 9000-foot marker. They also saw an aircraft tire on the runway about where the other aircraft turned off. The plane commander easily steered around the tire as he slowed down, then reported the FOD to the tower.

After securing the transport and disembarking the passengers, the plane commander went to Operations and called the tower supervisor. He wanted to know why the local thunderstorm had not been reported before they were on final. He also wanted to know why they had not been given a go-around when the attack aircraft began shedding rubber.

The supervisor reported an unusually large number of operations at the field during the time the transport was making its approach. Weather conditions were intermittent IMC. Later, tapes revealed the tower had cleared the transport to land while it was on short final and reported winds as 180/14 gusting to 20. The final tower transmission was to advise the transport that the last 2000 feet of runway were closed. Previously two attack aircraft had landed and one reported a blown tire. The tower was not aware of a tire on the runway, nor was the crash crew.

A few days later, another transport was making a GCA to another airport in actual IMC. The weather had been reported 600 scattered/1000 broken/2000 overcast, 1 mile in rain, winds north at 10. However, during the GCA the weather deteriorated to low scud/400 broken/1200 overcast, visibility variable one-half to 1 mile in rain, and the same winds.

The transport was on GCA final to Runway 1, everything down and dirty. At 2 miles to touchdown all hell broke loose. You may have wondered how it would be to be inside a cement mixer when it was turning. Well, that would be tame compared to the turbulence the aircraft encountered. It pitched up, yawed, rolled, pitched down, rolled, and yawed – it went every "whichway" but loose, and even tried that! The GCA final controller said, "You're above . . . " and before he could say glide slope, he changed it to "You're below glide slope."

The plane commander abandoned the approach, went to max power, picked up his gear, and watched the altimeter unwind. The aircraft finally stopped descending about 200 feet below the glide slope, at 1 mile, and started a slow climb. During the downwind turn severe turbulence was again encountered. A bunk tore loose from its mount and injured a crewman. An 8-ton piece of machinery began to move but fortunately did not break the tiedown chains. The G-meter fluctuated between -2½ to +4 G.

The plane commander continued climbing, requested and received a clearance to a divert field, and got out of there fast!

Once again the pilot had not been advised of actual conditions during the approach. The controller had not advised him of the latest weather, nor was there any mention of turbulence, wind shear, or anything about "cumulobumpus."

A final mishap involved a third transport. This time the aircraft was on the deck. The aircraft had landed during rain showers, and, after unloading passengers and cargo, the pilot was told he would have to move the aircraft from the terminal area. He was going to have to taxi to a fairly distant parking area.

Two engines were started and Ground Control cleared the pilot to taxi via a lighted taxiway to a mat area. Ground Control did not pass any information concerning some taxi lights out, construction equipment on the field, or any hazards.

While taxiing, the rain became heavy and visibility was reduced to a few yards. Somehow, during a momentary break in the intensity of the rain, the pilot saw construction equipment near an intersection. He slowed to a stop. A civilian guard without any wands or light of any kind appeared in the murk. He gave a come-ahead signal and the pilot eased the aircraft forward. He crushed a wingtip on the construction equipment, but luckily damage was minimal.

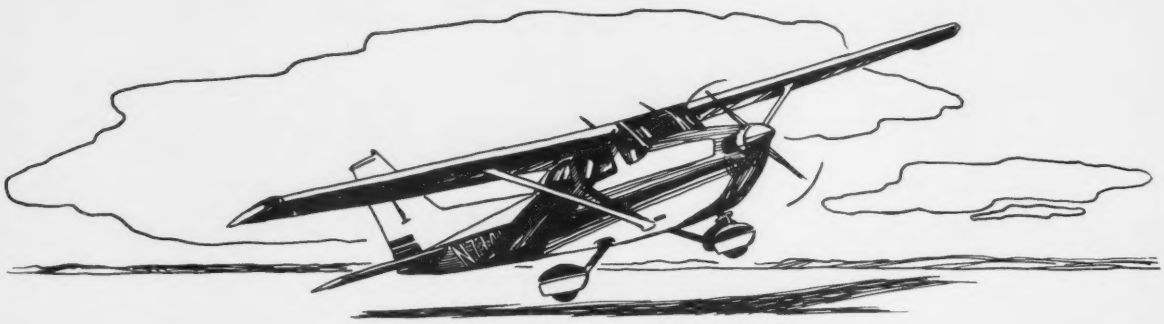
In each of the mishaps discussed, weather was an important factor, and vital information was not passed to the pilot in time, or at all. Controllers are reminded that there is a need to keep pilots informed when unusual conditions exist or when conditions deteriorate from the last forecast. It is recognized, if there are heavy flight operations, that Ground Control doesn't have the time to advise every aircraft about field hazards which are undoubtedly NOTAMed. However, it's criminal when there's only one aircraft on the field, taxiing at night, in heavy rain, and vital information such as location of construction equipment is not passed. Where was the Follow-Me? ◄

Quotable Quotes

Accidents can be prevented when all underlying causes are known. Personnel who will not admit their mistakes, and explain the rationale behind their actions, defeat the intent of a strong safety program.

WAIT and BALANCE

Some pilots are too anxious to become airborne at times. Taking this approach to flight sometimes leads to mishaps, not only with the heavy haulers, but the light, pleasure flyers as well. Such was the case of the private pilot who neglected to wait – and balance his rented Cessna before flight.



THE pilot originally wanted to take a larger, more powerful, light civilian airplane for the weekend jaunt to the mid-Atlantic coastal island resort. However, he hadn't enough time in model and had to settle for the smaller, less powerful kid-sister version. It would be a little slower and more cramped, but the pilot and his three fellow shipmates could endure the "pain." The rewards at the destination would surely ease any pressure exerted as a result of the flight.

The pilot loaded the four occupants' baggage in the aft compartment and had the three shipmates climb aboard as he commenced preflighting the Cessna. His attempts to lower the flaps and check out the gyros were preempted by a weak battery. No sweat, this could be done on the airplane's power after start. Right? Wrong! The aircraft wouldn't start on the battery either, so it was "jump-started" utilizing the battery of a nearby plane.

With the aircraft started and the "systems" all checked out and ready to go, the pilot set takeoff flaps and taxied rapidly to the duty for takeoff. UNICOM stated that the wind was out of the north at 8-10 knots, dictating a Runway 36 departure. Without stopping, the "expeditious" pilot made a running takeoff. Well past the halfway mark on the wet grass, 2500-foot runway, he decided that the Cessna wasn't ready to fly, and aborted. Not to be outdone this day, he decided that he would reverse direction and attempt another takeoff – only this time, downwind on Runway 18!

The airplane was last seen dragging its tail on the runway, reluctantly becoming airborne, and entering a left-wing-down attitude before it stalled and crashed off the end of the runway. All occupants eventually got out of the wreckage, but the pilot later died of multiple injuries resulting from the crash. His three shipmates recovered, after lengthy stays in the hospital, and returned to duty, minus their stay at liberty island.

Postaccident analysis revealed that the pilot had previously worked out W&B forms for other flights, but in this case he did not. For what reasons, nobody really can say. Complacency? Haste? In any case, he didn't do one this time. The airplane was estimated to be well over 100 pounds over max gross weight (and mostly aft CG). The baggage compartment was definitely over max; the average weight of the four occupants was 175 pounds; and the fuel tanks were not completely full, all resulting in an aft CG moment on takeoff. The RPM gage was noticed by the passengers to be on the lower side of the "green" (normal range) during takeoff. They indicated that the pilot mumbled something about "losing power" shortly before the plane stalled and crashed. The conclusions should be quite evident. No matter what type aircraft you fly, be it a Cessna 172, Douglas C-117, Sikorsky H-53, Lockheed C-130, or Grumman A-6 – Weight & Balance pertains to everyone. Don't overlook any part of your preflight the next time you plan a trip, whether it's for business or pleasure. A timely executed *wait* could very well prevent an *unbalanced* flight. The pilot of this particular flight apparently thought that W&B pertained only to the "big boys" and not the "little fellas." Unfortunately, this axiom is not true. ◄

QA

What does it mean?

By LCDR Lynford S. Walters, USN
VQ-4

IT means the guys with the stamp autographing the aircraft souvenir books, or the *?!*!@ guys who audit my maintenance shop every 3 months.

There is another meaning – prevention; prevention of aircraft accidents. This is QA's game. All aviators have had their hands full of stick and throttle on those nasty days, so why compound the pucker factor with aircraft problems. QA's obligation to you is to control your mechanical flying evolution – predictably.

There is hardly an aviator alive who has not cursed the maintenance effort to keep our aircraft operationally ready. Repeat gripes, "ground checks OK," "could not duplicate on deck," or "OK for flight" are an aviator's living nightmare (read: they're trying to kill us). On the south side of the fence, maintenance personnel are firmly convinced that aviators have been specifically trained since childhood to break a perfectly good piece of machinery and write the problem up in a fashion second only to the Rosetta stone.

QA remains the middleman dedicated to ensuring an operationally ready aircraft to the satisfaction of maintenance, flightcrew, and all the rule books; it is the maintenance safety program. It was designed to service the inherent problems associated with group maintenance efforts (i.e., the watchdog) with the most highly skilled maintenance personnel available. The Quality Assurance Division is responsible for managing the maintenance safety program.

The safety effort, according to OPNAVINST 4790.2A:

> "... extends to safety of personnel, maintenance of equipment, and virtually every aspect of the total maintenance effort."

What does this mean to the average aviator? From plane captain to wrench turner, all are briefed by QA on hazards you create and to detect hazards to save your tail before, during, and after you're airborne. All critical safety of flight items are inspected and reinspected by a staff of highly trained and skilled maintenance personnel through Quality Assurance. Virtually all maintenance safety programs are monitored by QA, including fuel sampling, corrosion control, tool control, and GSE abuse. All data on your hot little flying machine are continually collected and analyzed.

QA can probably tell you whether or not that fire-breathing dragon will perform like a pup or a nursing home candidate. All aircraft technical publications an engineer could dream about are available through your tech library in QA – and, of course, incident reports; the neon signs you send worldwide stating something went amiss. QA reviews and submits them to ensure the information is beneficial to all, and, in some cases, requests engineering investigations to follow unusual failures.

The QA office possesses all the knowledge and skill necessary to assist you. QA has the responsibility for directing improvement in work quality, environment, and reliability. Our maintenance program is excellent; QA makes it better. These documentation stamps mean far more than a simple inspection. It's assurance that your aviation days are designed to be long and prosperous. The men behind them are part of your protection. ◄

BRAVO ZULU

BRAVO ZULUs ARE NOT RESERVED FOR AIRCREWS ALONE – SUCH AS THE RECENT CASE INVOLVING AC2 JACK KENICK, AN AIR CONTROLLER AT NAS NORFOLK, AND A C-9 SKYTRAIN II FROM VR-56.

THE crew of Swing-88 was prepared for a good day of flying the C-9 on a trip to the west coast, RON, and returning the next day. The weather was forecast to be CAVU. The crew reported for flight, completed preflight duties, and serviced the aircraft. Engines were started and the *Skytrain II* was taxied to the terminal for passenger pickup.

Passing abeam the tower, Ground Controller AC2 Kenick noticed the C-9 leaking fluid from the aft section of its fuselage. It appeared to be more than the usual venting fluid that occasionally comes from an overboard type drain outlet. He immediately advised the pilot of the unusual overflow that was trailing the aircraft. The pilot then taxied his aircraft to the ramp for a closer inspection by his crew. It was thought that the overflow was caused by an overserviced potable water tank located in the aft section of the C-9. This was not the case! A massive fuel leak was streaming JP-5 from a fuel line shroud that had filled due to a leak in the system. The seriousness of this condition cannot be overemphasized. Had this flight taken off prior to its discovery, catastrophic results could have occurred.

Thanks to the timely action and commendable effort of AC2 Jack Kenick, there was no catastrophe this day. Well done! Safety is truly a team effort. ◄

Unique Camera Aids Accident Investigations

20/20 SLEUTH

Reprinted from NAFEC Program HIGHLIGHTS
courtesy Public Affairs Office
FAA/National Aviation Facilities Experimental Center

WHAT did the pilot and copilot of the Pacific Southwest Airlines (PSA) Boeing 727-200 see – or not see – just before the collision with a Cessna 172 on September 25 that killed 144 people?

That is what the Center's Aircraft and Airports Safety Division is hoping to help the National Transportation Safety Board find out with NAFEC's unique binocular camera.

The camera was developed and built in the early 1950's by NAFEC's predecessor, the Technical Development and Evaluation Center, to establish minimum cockpit visibility standards for use in the design and certification of aircraft.

After a number of midair collisions in which the pilots did not see the other aircraft until just before impact, if at all, it became evident to the then Civil Aeronautics Administration that a standard for measuring cockpit visibility was needed.

This led to the development of the binocular strip-film camera which uses twin lenses spaced 2½ inches apart – the average distance between human eyes. The camera is placed in a pilot's seat at the designed eye position and leveled. It is the only camera of its kind in the aviation field.

"We're hoping," says NAFEC Acting Director Joseph M. Del Balzo, "to upgrade its capabilities or even have a new one built incorporating the latest technology in the field. But this depends on whether funds are available for such an undertaking."

The camera rotates about its vertical axis at one revolution every 36 seconds, producing a photographic record of what a pilot (or copilot) would see as he turns his head. A grid of horizontal and vertical lines 5 degrees apart is automatically superimposed on the picture for reference purposes.

Chief Lawrence Langweil of the Aircraft and Airports Safety Division said his division started investigating accidents with the camera more than 10 years ago, after it had been shipped to NAFEC along with other equipment from CAA's Technical Development and Evaluation Center in Indianapolis. One of the first people to use the camera at TD&EC in the development of minimum cockpit visibility standards for commercial aircraft was Wayne D. Howell, now Chief of NAFEC's Fire Safety Branch.

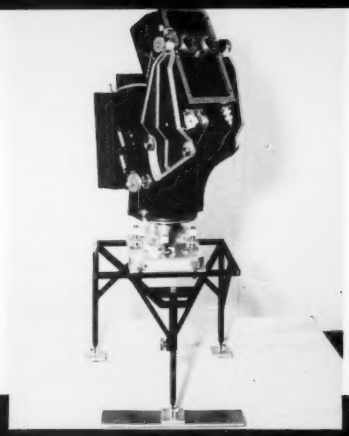
Shortly after the midair collision over San Diego, Frank T. Taylor, Director of Accident Investigations for the National Transportation Safety Board, asked NAFEC's Aircraft and Airports Safety Division for help in determining the cause of the accident.

Anthony J. Barile, an aerospace technician in the division's Airports Branch, installed the binocular camera in the pilot's seat of NAFEC's Boeing 727, N40, and a borrowed Cessna 172.

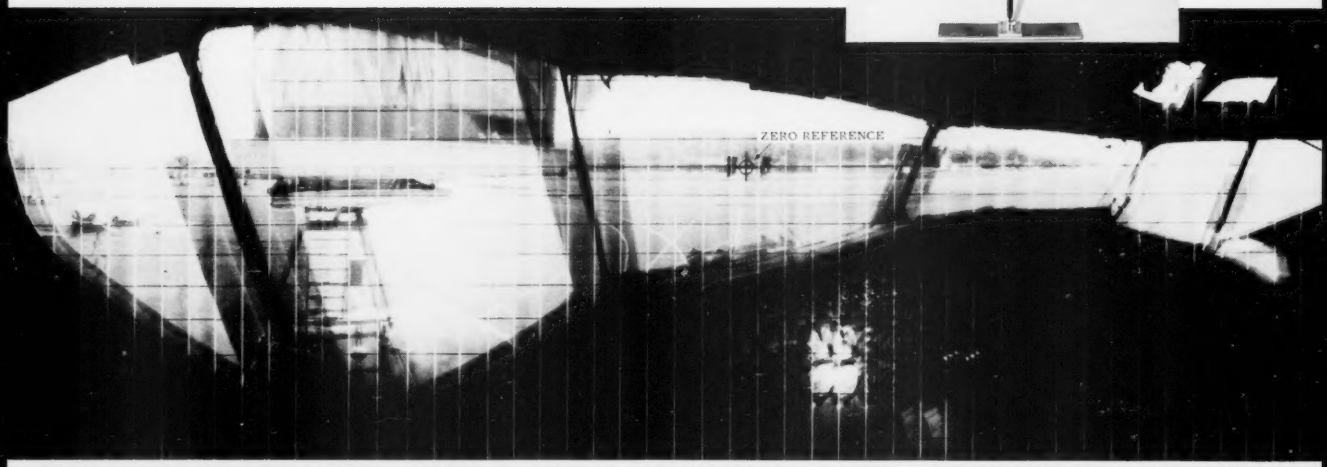
When the investigators learned that there were critical differences in the cockpit designs of NAFEC's 727-100 and PSA's newer model Boeing 727-200, Barile was asked to take the binocular camera to Boeing's plant in Renton, WA, and photograph the cockpit interior of a new 727-200.

During this period, NTSB collected all the information it could about the midair collision over San Diego from eyewitnesses, actual photographs, air traffic controllers, and Flight Service Station attendants, along with data from the airliner's cockpit voice recorder and flight data recorder. These data were then fed into a specially-programmed computer at the National Aeronautics & Space Administration's Langley Research Center. From this, the computer has plotted the calculated flightpaths of the two aircraft during the final 170 seconds prior to impact.

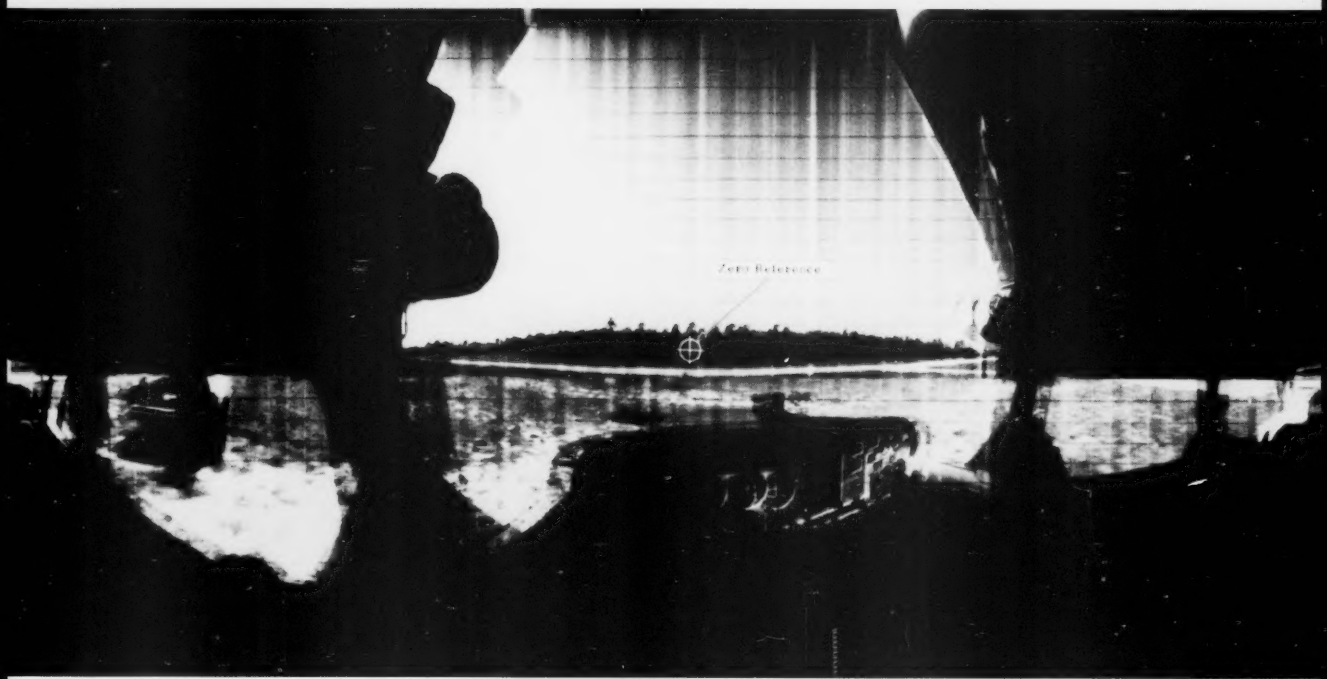
The next step will be to superimpose the projected flight path of the Cessna 172 onto the binocular camera photographs taken by Barile inside the cockpit of the Boeing 727-200. Hopefully, this will give NTSB investigators another clue – possibly the key – to help them unravel the events leading up to the midair collision. NAFEC expects to have its part of this project finished and in the hands of the NTSB shortly. ◄



ONE OF A KIND: NAFEC binocular camera pictures pilot's view.



Pilot's view from the cockpit of a Boeing 727-200 was photographed with NAFEC binocular camera as part of the investigation of a midair collision over San Diego.



This picture was taken with binocular camera from pilot's position in a Cessna 172.

THE HUMAN CHOCK

MOVING aircraft around on a carrier is by no means a job to be taken lightly. However, as the long hours of flight ops, and resulting maintenance needs, continue throughout the day and into the night, procedures often become routine and a certain amount of complacency sets in. This is particularly true with flight deck and hangar deck personnel who have been working long hours. It's at this point that the chance for a mistake is greatest, resulting in aircraft crunches, or, worse, people crunches.

Sometimes, even though a mistake is made, the resulting damage or injury to people or planes is slight or nonexistent. The usual response to one of these situations, by an observer, reads something like, "Oh - - - - - - -, that was close. You sure were lucky!" Well, luck has very little, if anything, to do with it. What saved someone in a situation from becoming a statistic was not luck, but one or more of the many safety precautions observed. Occasionally these safety precautions are often taken for granted.

A good example of this occurred one night. After a full day of flight ops, an S-3A was being respotted in hangar bay No. 3 for routine maintenance work. There were two wheel walkers, two tractor drivers, and a director. The tractor was backing the S-3A toward its final tiedown spot when the tractor driver felt some resistance. The director, noticing the frantic arm waving of the starboard walker, blew his whistle and gave the signal for the tractor driver to stop. The starboard wheel walker had managed to get his left foot caught under the starboard main landing gear, causing his foot to act as a chock. The director had the tractor driver pull the plane forward, to release the wheel walker's foot, before having the aircraft chocked and tied down.

What mistake was made? The wheel walker was the one at fault. Instead of being next to the wheel, ready to chock the tire as soon as the director called for it, he was directly in line with the wheel, walking backwards with the main gear coming directly at him. Being in the wrong place, and inattention to what he was doing, nearly cost this blue shirt his left foot.

Why was he so "lucky"? A very basic and simple safety precaution – steel-toed safety boots. The weight of the aircraft didn't do much good for the boot, but the boot certainly did a lot of good for the blue shirt's foot. Instead of a foot with many smashed bones, he escaped with some bruised areas and the probable loss of a toenail or two.

Obviously, if no one ever made an error in complying with procedures, all the safety precautions one is supposed to take might not be needed. In the meantime, those of us who do follow all the safety precautions are going to be the "lucky" ones when those mistakes are made. ◄

There has to be a better way!

THE H-3 was being prepared for an early morning flight, and in order to clean the windshield a TA-18 was positioned on an angle in front of the helicopter. During movement to reposition the tractor, the front end struck the nose of the helicopter.

Only limited damage to the helo resulted, and no damage was incurred by the tractor. One will recognize that the cause of the damage was the failure of the driver to ensure adequate clearance between the tractor and the aircraft. Anyone who is familiar with the chore of cleaning H-3 windshields will also recognize that it isn't easy!

The cleaning of the H-3 windshield is not a routine job when angles, elevation, uneven surfaces, heat, noise, etc. are considered. Various methods by a lineman/plane captain trying to get into position to do the job have been tried. Whatever methods are used, they usually end up in dings – to the body or the helo. Some of the more exotic methods are:

- Tractors, platforms, power units, rustlick carts, stands, chairs, boxes;
- The battery compartment ledge;
- Sitting in the pilot's/copilot's windows and leaning as far as possible;
- Other – such as the bumper of a POV or tailgate of a truck.

These methods lead to the fact that personnel will take the easy route and will use whatever is available. The photos attached show another method. That's not it either – too much leaning, too awkward, and not very practical except on a dry day when there's no wind.

This is a plea to the designers and engineers of material: How 'bout designing a ladder which will hook on the helicopter somewhere and will be lightweight and easy to carry/stow OR can some smart guy figure out how to make a squeegee with a lifter to raise the wipers?

Letters

Re: "Communicate"

San Diego, CA – The article, "Communicate," in the DEC '78 issue was indeed very appropriate, and hopefully the message will be heeded by young and old aviators alike – particularly the young. I found out that communication/controller problems still exist and surfaced once again during a recent visit to fleet squadrons.

Many of our younger aviators today have only known an environment where positive control is the rule. In the main, positive control has been effective in providing safe separation and assisting aircrews in getting from point A to point B. However, this assistance has the tendency to produce an attitude of complacency in the aircrew and too much dependency on the controller. It must be remembered that the controller is primarily interested in preventing traffic conflicts. His motivation may, if unquestioned by the pilot, lead the aircrew down the mishap road. If advised, the controller will almost certainly take into account the aircraft's problem and vector accordingly. The main danger lies in the pilot blindly following the controller's instructions and not advising him of his priorities.

Additionally, radio failure while on a radar vector may catch the unwary pilot somewhat unsure of his navigation and create some real problems. Continual reliance on radar vectors to GCA may degrade the pilot's proficiency in making TACAN or other navigational approaches. In the final analysis, the aircrew is responsible for the safe conduct of the flight and should accept the help provided by the controllers for what it is – assistance.

In the old days, before positive control, this assistance was of such questionable value that most oldtimers have a very cautious attitude which carries over even today. That ain't all bad.

Grey Ghost
CNAP

"Water Survival"

NAS Jacksonville – (Re: Letter "Water Survival," DEC '78 APPROACH.) "My Navy, are you listening?" *Answer:* Some are and some aren't. As Director of the Water Survival Training Facility at NAS Jacksonville, I have been intimately interested in providing the Fleet with the type of survival training it needs. JAX has been designated as the east coast DWEST site.

In the interest of expanding to a complete DWEST program, I traveled to Homestead AFB in August. I was amazed at what I observed. The USAF has had a parasailing program since 1961. As of August 1978, over 50,000 students have been cycled through the program. One student has had an accident; he released the parasail at 100 feet! All USAF aircrewmen pass through this training, plus numerous foreign students. The USAF training is based upon 1962 technology.

Recently, a new device has been developed which places parasailing in the cost category of waterskiing. As a result, resorts are establishing parasailing programs; average cost – $15 a ride. FASOTRAGRUDET JAX is taking over the DWEST program and water survival training at JAX. It is my hope that the "powers that be" will see to it that a parasailing program becomes the focus of DWEST. When all foreign aviators go to the Air Force for Water Survival Training and civilian Joe Blow can get it for $15, a parasailing experience which no Navy pilot can get, one would hope that someone, somewhere is listening.

Second subject: APPROACH, DEC '78. On pg. 2 we have the "Pilot A" experience wherein he says: "Once my feet hit I PULLED DOWN ON THE CHUTE RELEASE AND IT DRIFTED AWAY, BEHIND ME." On pgs. 4 and 20-21 we are told about the SEAPAC development. Somewhere, somebody ain't communicating. Appears that we are reinventing the wheel.

LCDR D. H. Huber
Flight Support Officer
NAS Jacksonville

● LCDR Huber is in the process of writing an in-depth article on USAF parasail training, and how the Navy can effectively adopt this method. The confusion referred to in the last paragraph of LCDR Huber's letter was caused by a poorly worded sentence on our part. The "chute release" referred to was none other than our standard Koch fittings.

Re: "SEAPAC"

NAS Whidbey Island – Come on, gang, let's tell it like it was. In reference to the SEAPAC tests mentioned in your article

APPROACH welcomes letters from its readers. All letters should be signed though names will be withheld on request. Address: APPROACH Editor, Naval Safety Center, NAS Norfolk, VA 23511. Views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

in the DEC '78 issue of APPROACH, somebody speaks with a forked tongue.

The testing your article referred to was on a prototype system called "Man Safe," a much more sophisticated system than SEAPAC. The comparative test referred to as "in trouble the moment he hit the water" was also on "Man Safe." The Test Parachutist's problems began when he relied completely on an automatic system and waited too long to initiate the manual mode.

Although we have an opportunity to afford our aircrews a system that offers many advantages over strictly manual mode, let's not lull them into a false sense of security with a colorful commercial about an item of equipment that has yet to be live-jump tested at the National Parachute Test Range or anywhere else.

PRCM H. W. Picard
VA-196

● You're right. Please refer to correction of "SEAPAC" in this issue.

For the Birds

Pittsburgh, PA – (Re: Letter in JAN '79 APPROACH concerning helo bird strike.) It is not my intention to second-guess the situation; however, as an experienced aviator who has coexisted with birds for 22 years, I would like to pass on a rule of thumb that I find helpful. Let the Senior Bird Present (SBP) do the maneuvering! Breaks/turns confuse the bird(s), cause loss of eye contact with the bird(s), and, in all probability, aggravate the situation. In most cases it is impossible to determine the relative motion, and collision avoidance is best served by holding course and altitude or by very slight nose/collective pitch adjustment so as to pass above or below – time permitting! This does not preclude a rotor or wing dip close-in as necessary. A miss is as good as a mile holds.

CDR John L. Tarn, USNR-R
Former Air America Pilot
NR COMNAVSURFLANT DET 305

P.S. I have always enjoyed your publication and have avidly read it throughout my active and reserve naval career. I believe it has served to make me a more safety-conscious pilot.

Monday Morning Quarterbacking

NAF Atsugi, Japan – During the Monday morning quarterbacking which inevitably follows an aircraft accident, one question invariably arises: "What *should* the pilot have done?" The answer sometimes is: "He never should have accepted the mission." It sounds good, and with the benefit of 20-20 hindsight, it sounds simple. But if it's so simple, why did the aircraft commander not exercise the prudent judgment expected of him? One reason, perhaps the most basic reason, is that he lacked self-confidence. But think about it. It takes no self-confidence to cave in under operational and/or peer pressure and accept an unwisely tasked, overextended mission. It looks macho and effectively avoids being tagged with the dreaded moniker – "non-hacker."

A vicious circle has begun: the pilot assumes that Operations knows best, while Operations counts on the pilot to make the final go/no-go decision. It takes maximum self-confidence to break the circle. One reason is that there are no criteria by which to judge the merits of a no-go decision. The accident which is prevented by cancellation doesn't happen and there is no way to prove that it would have.

The pilot has only his confidence in himself, his aircraft, and his decision. For a professional, that's enough. So look to the pilots in your unit who have enough self-confidence to say *no* at the right time. *They* are the professionals!

COMFAIRWESTPAC
FPO, San Francisco

To On-Scene Commanders

NAS North Island – SAR (Search and Rescue) is visible in nearly every aviator's required operational capabilities statement, and we in the rotary-wing community have been spending a considerable amount of time on the subject. In some cases, our primary mission is SAR, and we are careful to obtain and maintain the equipment and skills that will safely recover a downed aviator, on the land or in the water. All Navy helicopters have some level of SAR capability.

In two recent instances I have experienced lack of, or poor, direction in SAR evolutions. This indicates to me that a few on-scene commanders have neither read the National Search and Rescue Manual (NWP-37B) nor thought much about how they would utilize a helicopter in a SAR effort.

Chapter 8 of NWP-37B refers to search patterns, planning, and the POD (Probability of Detection) for a particular target under the conditions available. It suggests a checklist of items you should consider when directing SAR forces, and gives detailed guidelines on how to conduct a SAR in the absence of a SAR mission coordinator.

If a SAR mission coordinator is available, you should request a mission search plan and execute it with all of the SAR forces made available to you. Turning down a SAR asset, before the survivors are located and safely aboard a rescue vehicle, violates commonsense. If you know the area the survivors are in, establish viable search patterns, measure POD properly to ensure adequate coverage of the areas, manage the SAR assets with intelligence and, if everyone does their job properly, a successful recovery will occur most of the time.

On-scene command is an extremely important part of a SAR effort. Those of us down low need your equipment, coordination, and knowledge for successful SAR evolutions. Please read the Search and Rescue Manual for all of our sakes.

A Helo Driver
HC-11

● Thanks for the reminder. Anyone associated with Naval aviation could benefit from a periodic review of all his SAR procedures.

Lions – 2, Christians – 1

NAF WESTPAC – Not to be outdone by our sister service to the south, we have another tally to add to your MAR '79 article, "Is NATOPS Needed for Navy/Marine Corps Flying Clubs?"

Recently, one of our light planes was taxiing behind a foreign P-2J *Neptune*, thought to be at idle power. Due to a mixup in signals (international), our Cessna, some 200 feet behind the patrol plane, proceeded to taxi for takeoff and became engulfed in the propwash of the P-2J. An ensuing battle commenced as the Cessna tried to weathercock into the prevailing propwash.

Once again it proved a "good, little bird" cannot do battle with a "bad, big bird" and win. The little bird rolled over its nose, onto its back, and played dead. Fortunately, only minor injuries were inflicted.

Maybe all Navy/Marine aeroclubs do need something akin to a NATOPS program, but where will the funds come from and who would be the model manager of such a program? It's a good idea just the same. Until it does come, all of us (clubs) must constantly monitor and enforce our own safety programs.

Little Bird Lover

P.S. If such a program is coming, incorporate a section on international ground signals.

TIRE PROBLEMS

By Crewman
VP-17

THERE is only one way to handle an emergency – the right way! However, without Monday morning quarterbacking, how does one know that what he does in an emergency will be the right way when the pressure is on? LTJG Steve Colby and the members of Crew 5 of VP-17 recently had a chance to find out for themselves, when their routine flight suddenly became an emergency situation.

After completing an uneventful morning preflight, LTJG Colby and TACCO LTJG Joe Gheesling briefed their crew for a Maritime Air Patrol in the local operating area. The crew was briefed on P-3B emergency procedures as well as mission requirements.

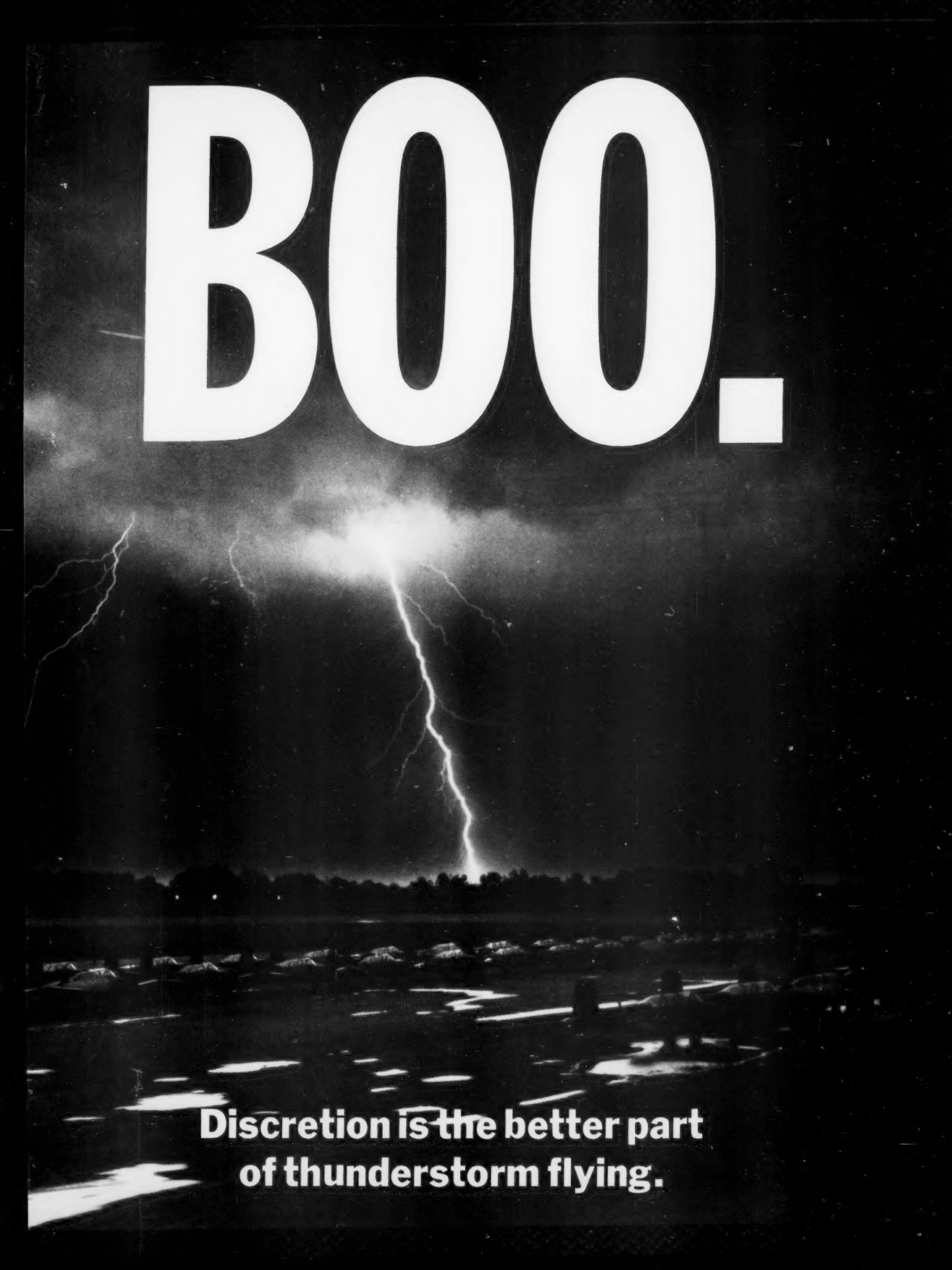
While on the takeoff roll, LTJG Colby noticed some slight vibrations at 80 knots, but this was not unusual for the local runway. At rotation a violent shudder was felt throughout the aircraft. Suspecting possible nose gear or tire problems, LTJG Colby abandoned the idea of aborting the takeoff, which may have proved disastrous had the nose gear collapsed. He climbed out, notified the tower, and declared an emergency. Several low passes over the field failed to determine the extent of the damage. Not until the crash crew recovered the remnants of a nose gear tire recap, and a visual inspection was made through the bomb bay window, was the exact cause of the vibrations determined.

After reviewing all emergency procedures and ensuring that the crew was thoroughly briefed, LTJG Colby decided to bring it in, holding the nose gear off until absolutely necessary. The first approach was waved off because the aircraft was not set up quite right. The next approach was a perfect alignment, and a smooth landing followed. On the rollout, LTJG Colby was extremely careful not to stress the nose gear by keeping back pressure on the yoke until the aircraft slowed and by using his brakes sparingly.

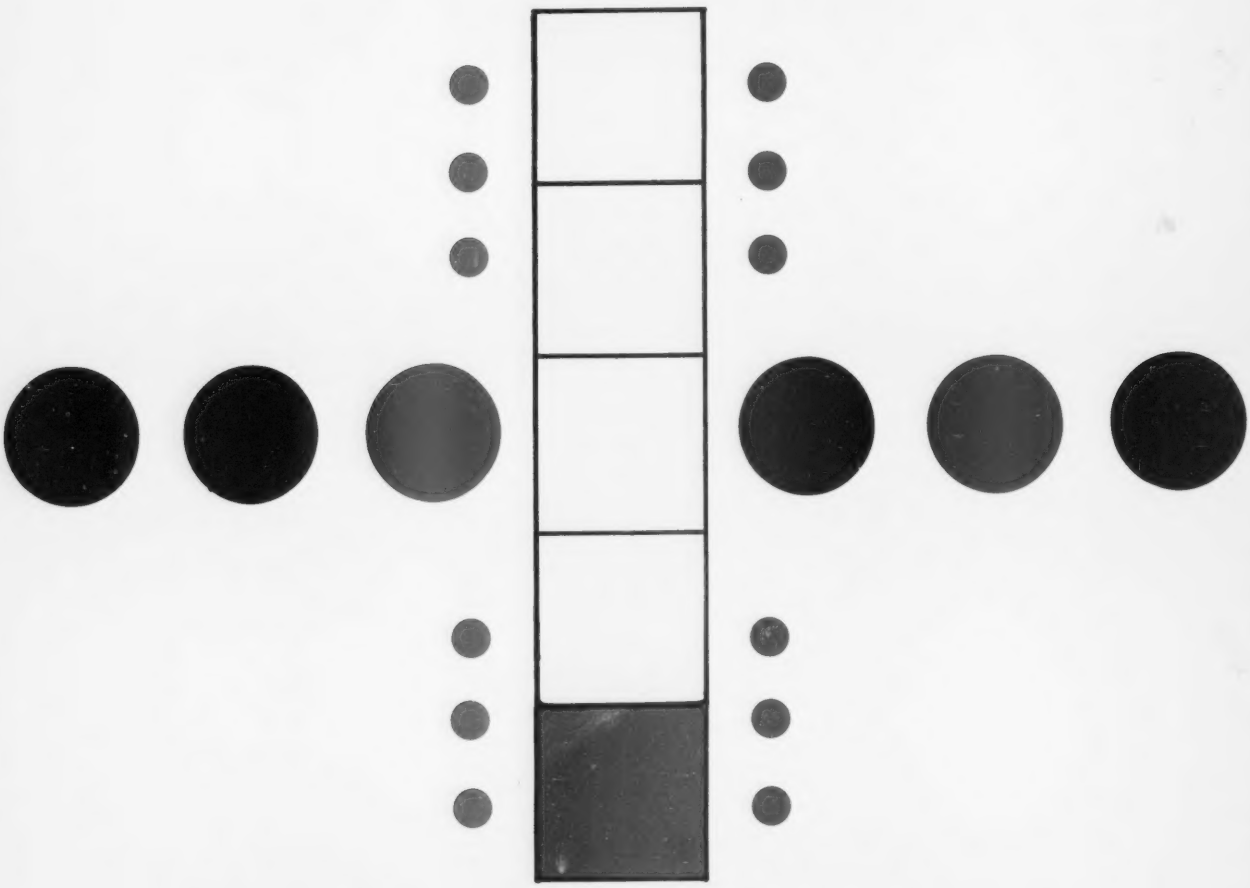
Postflight inspection revealed that not only had the recap separated from the port nose tire, but there was an 8-inch crack in the nose gear strut.

The professional performance of the crew reflects a great amount of safety and NATOPS awareness. This incident has served to stimulate more interest in emergency procedures and how to handle them the right way. The PPC warrants an Attaboy! ◄

☆U.S. GOVERNMENT PRINTING OFFICE: 1979—635-002/3


BOO.
Discretion is the better part
of thunderstorm flying.

FARM



FOR SALE

Idea contributed by LCDR R. F. SULLIVAN, VA-165.